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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,541	12/12/2003	Kenji Shiraishi	1536	9699

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EXAMINER

PHAM, MINH CHAU THI

ART UNIT	PAPER NUMBER
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1724

DATE MAILED: 03/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/734,541

Applicant(s)

SHIRAISHI ET AL.

Examiner

Minh-Chau T. Pham

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-11 and 13-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-11 and 13-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-4, 6-11, 13 and 14 are again rejected under 35 U.S.C. 102(b) as being anticipated by Pieciak (4,156,601).

Pieciak teaches a gas filter comprising a cylindrical case and a filter element with a filtration portion formed to have a cylindrical shape (3) wherein a first filtration material made of boro silicate glass filter paper (6 in Fig. 1, col. 1, line 62 through col. 2, line 12, col. 2, lines 31-55) wrapped around the cylindrical support (4), and a second filtration material made of nonwoven fabric such as polyester nonwoven felt (7 in Fig. 1, col. 3, lines 10-17) .

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 15-18 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Pieciak (4,156,601), in view of Shimoda et al (6,585,794 B2).

Claims 15-18 call for the wetting ability wherein the second filtration material has a pore diameter larger than a pore diameter of the first filtration material to improve separation efficiency of oil mist from gas. Shimoda et al disclose a multilayered nonwoven filtration material (3) wherein the pore diameter of the second filtration material (2c) is larger than the pore diameter of the first filtration material (2b) or the larger pore diameter material is on the exit. It would have been obvious to a person

having ordinary skill in the art at the time the invention was made to provide a filtration material with the wetting ability as taught by Shimoda et al in the filter apparatus of Pieciak since the larger diameter pore would not only improve efficiency of oil mist from gas but also improve corrosion resistance without compromising the performance of pressure loss.

Claims 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pieciak (4,156,601), in view of Shimoda et al (6,585,794 B2), and further in view of Kahlbaugh et al (5,792,227).

Claims 19-22 call for the pore diameter of the first filtration material is between 5 microns and 20 microns. Kahlbaugh et al disclose a filtration arrangement with multiple layers of filtration material wherein the filtration material in the first region having the pore diameter between 18 to 20 microns (col. 9, lines 11-19 and lines 40-55). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide the first filtration material with the pore diameter between 5 to 20 microns as taught by Kahlbaugh et al in the filtering apparatus of Pieciak and Shimoda et al to provide the ability to trap particles (especially smaller ones) in general increases from an upstream side to a downstream side (see col. 4, line 65 through col. 5, line 1).

Response to Amendment

Applicant's arguments filed on November 28, 2005 have been fully considered but they are not persuasive.

Applicant argues that the Pieciak does not teach the order of the air flow through the first glass paper then through the second non-woven fabric filter media. The

Examiner respectfully disagrees. Pieciak teaches filtration layer (7) as the nonwoven layer which acts as a support layer to the glass paper layer (6). In addition, Pieciak teaches that at least one layer of boro-silicate glass filter paper being wrapped around the cylindrical support (see the Abstract), or inherently, a multiple layer of glass filter papers or alternate layers can be incorporated either on the upstream or on the downstream or both sides of the nonwoven fabric support layer since the support layer has a function of supporting the flimsy and fragile glass paper filter.

Applicant further argues that the secondary reference Shimoda et al directs to separating solid particulates (not fluids) from the exhaust gases. According to the Webster's Ninth New Collegiate Dictionary, on page 475, the term "fluid" is defined as "a substance (as a liquid or gas) tending to flow or conform to the outline of its container". Therefore, the term "fluid" broadly calls for either liquid or gas particulates in the air/liquid stream. Shimoda et al disclose a multilayered nonwoven filtration material (3) wherein the pore diameter of the second filtration material (2c) is larger than the pore diameter of the first filtration material (2b) or the larger pore diameter material is on the exit. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide a filtration material with the wetting ability as taught by Shimoda et al in the filter apparatus of Pieciak since the larger diameter pore would not only improve efficiency of oil mist from gas but also improve corrosion resistance without compromising the performance of pressure loss.

Regarding to the new claims 19-22 which call for the pore diameter of the first filtration material is between 5 microns and 20 microns. The Examiner newly introduces

Kahlbaugh et al as the tertiary reference in combination with Pieciak and Shimoda et al to show a filtration arrangement with multiple layers of filtration material wherein the filtration material in the first region having the pore diameter between 18 to 20 microns (col. 9, lines 11-19 and lines 40-55). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide the first filtration material with the pore diameter between 5 to 20 microns as taught by Kahlbaugh et al in the filtering apparatus of Pieciak and Shimoda et al to provide the ability to trap particles (especially smaller ones) in general increases from an upstream side to a downstream side (see col. 4, line 65 through col. 5, line 1).

Applicant's arguments with respect to claims 1-4, 6-11 and 13-22 have been thoroughly considered but are moot in view of the new ground(s) of rejection, as discussed above.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh-Chau T. Pham whose telephone number is (571) 272-1163. The examiner can normally be reached on Mon/Tues/Thur/Fri 7:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Minh-Chau Pham
Patent Examiner
Art Unit: 1724
February 24, 2006